edge of the natnral history of the region by forming a perfect collection of the rocks, minerals, plants, and animals of Essex County; to practically encourage the cultivation of fruits, flowers, and vegetables; to form a scientific and historical library for the benefit of all who wished to study; to foster research and to aid in the diffusion of knowledge. All this Doctor Wheatland lived to see carried forward far beyond his expectations. He died content with his work; and he has left a priceless legacy to the city of his birth. With his death the last of the old school of naturalists has passed away. New methods and new theories have made rapid advances, and a second generation, after his active working days, has entered the ever-widening field of scientific research, until now the times are changed, and instead of its being necessary to become a doctor of medicine in order to be a naturalist, a physician must be something of a naturalist in order to hold his position in the medical profession.

1896. F. W. PUTNAM.*

ASSOCIATE FELLOWS.

JAMES EDWARD OLIVER.

JAMES EDWARD OLIVER, who died on March 27, 1895, in the sixty-sixth year of his age, was born in Portland, Maine, July 27, 1829, of Quaker parentage. The family subsequently removed to Lynn, Massachusetts, and there young Oliver fitted for college at the Lynn Academy. He entered Harvard as a Sophomore, graduated in 1849, and was the class poet.

One of his classmates writes of him that "he was a modest, diffident, retiring, self-absorbed person in college, doing work not to be ashamed of in other branches, but achieving distinction only in mathematics."

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* In these brief reminiscences of the career of Dr. Wheatland, and of the remarkable influence he exerted on the life of many young men and women, as well as upon the community in which he lived, I have not attempted a sketch of his life, nor have I alluded to many events of special interest. Some of these, and a list of the important offices he held, the societies that conferred membership upon him, and the titles of his publications, are to be found in the pamphlet published by the Essex Institute, containing an account of the meeting of the Essex Institute held on April 17, 1893, "in memory of its late President"; also in the Memoir by William P. Upham, printed in the Proceedings of the Massachusetts Historical Society, 1895; and in memorials of various other societies.

It may be added that he was one of the ablest pupils of the elder Peirce.

With regard to his mathematical ability, Cajori* writes that "in 1849 he had already displayed extraordinary mathematical power," and "in the Harvard Catalogues of 1854 and 1855 we find J. E. Oliver taking advanced courses of mathematics such as were offered at that time by no other institution in the land."

Shortly after graduation he received an appointment in the Nautical Almanac office in Cambridge under Professor Peirce, where he met several men of unusual mathematical ability.

In 1861 he was elected a Fellow of this Academy, and in 1873 an Associate Fellow. In 1871 he was appointed an Assistant Professor of Mathematics at Cornell University, and in 1873 he was appointed Professor, and retained the office during his life.

He was also a Fellow of the American Philosophical Society, of the American Association for the Advancement of Science, and of the National Academy. He was also a member of the Council of the American Mathematical Society.

Professor Oliver's published communications on mathematical subjects may seem fewer than might have been expected, considering his great ability. He seems to have been actuated less by a regard for reputation than by what he considered as his immediate duty. Mrs. Oliver writes that "his chief original work was done before his advanced students," and that, "when his intellectual curiosity was satisfied, he begrudged the time necessary to write it out for publication."

Professor Burr (Cornell Daily Sun, April 3, 1895) writes of him that "his mind was too discursive in its method and too unpractical in its bent to lead him largely into publication, and it is as a teacher and a man that he will be longest and most affectionately remembered. He was absent-minded, unmethodical, prone to digression, but his acuteness of mind, his power of sustained research, his comprehensiveness of view, his utter freedom from bias, his unflagging enthusiasm, made his leadership for those who had the wit and mettle to follow it a thing of perpetual inspiration."

Besides these peculiarities of his intellectual temperament, if I may use such an expression, which were without doubt unfavorable to publication of original results, there was also another difficulty. The excessive work required of him as mathematical professor at Cornell

* Bureau of Education, Circular of Information No. 3, 1890, p. 178. The Teaching and History of Mathematics in the United States, by Florian Cajori, M. S. (University of Wisconsin), etc. Washington, 1890.

left him little time for the preparation of his material for publication. He has alluded to this in one of his official reports.

In the Appendix to the Annual Report of the President of Cornell University for 1886–87, Professor Oliver (see Cajori, *loc. cit.*) writes: "We are not unmindful of the fact that by publishing more we could help to strengthen the university, and that we ought to do so, if it were possible. Indeed, every one of us five is now preparing work for publication, or expects to be doing so this summer, but such work progresses very slowly, because the more immediate duties of each day leave us so little of that freshness without which good theoretical work cannot be done. . . . The greatest hindrance to the success of the department, especially in the higher kinds of work, lies, as we think, in the excessive amount of teaching required of each teacher, — commonly from seventeen to twenty or more hours per week."

I am indebted to Mrs. Oliver for the following list of Professor Oliver's published notes and papers connected with mathematics.

Demonstration of the Pythagorean Proposition. Math. Monthly, Vol. I., 1858, p. 10.

On Mr. Collins's Property of Circulates. Math. Monthly, Vol. I., 1859, p. 345.

Introduction to Treatise on Determinants. Math. Monthly, Vol. III., 1860, p. 86.

Partial Investigation on the best approximate Representation of all the Mutual Ratios of k Quantities by those of Simple Integers. Proceedings of American Academy of Arts and Sciences, Vol. VI.

Mathematical Note on Linguistic Resemblances. Trans. Amer. Philos. Soc., Vol. XIII.

On some Focal Properties of Quadrics. Proceedings American Academy, Vol. VII.

Note on Query concerning Ball held in Jet of Water. Analyst, I. 29, 1874.

On the Law of Distribution for certain Plant-Numbers. A Method of finding the Law of Linear Elasticity in a Metal. Abstract Proceedings Amer. Assoc. Adv. Sc., Vol. XXXI. 1882.

A Projective Relation among Infinitesimal Elements. Annals of Math., Vol. I., May, 1884.

On the General Linear Differential Equation. Annals of Math., Vol. III., August, 1887.

Elementary Notes. I. General and Logico-math. Notation. Annals of Math., Vol. IV., December, 1888.

Preliminary Paper on Sun's Rotation. Read before the Spring Meeting of the National Academy, 1888.

The Soaring of Birds. Science, January 4, 1889.

Some Difficulties in Lasage-Thomson Gravitation Theory. Abstract Proceedings Amer. Assoc. Adv. Sc., Vol. XLI., 1892.

A Mathematical Review of the Free-will Question. Phil. Review, Vol. I., March, 1892.

Review of Mathematical Recreations, by W. W. Rouse Ball. Bulletin N. Y. Math. Soc., November 1, 1892.

Estimates of Distance. Science, March 11, 1892.

Oliver, Wait, and Jones. Text-books on Mathematics for Colleges. Algebra, especially chapter on Imaginaries, etc. Trigonometry.

Cornell University. Reports on Courses, Aims, and Methods of Mathematical Teaching at Cornell University.

Papers and Discussions at various Educational Meetings on Teaching, with application to the study and teaching of Mathematics.

The above sketch refers to matters which, being related to his scientific career, present themselves more easily to our notice.

But this was only a part of his life. Professor Oliver was interested in much outside of his special duties as teacher of mathematics. His moral qualities were of a superior order. His personal relations with his friends and colleagues were such as to gain for him their respect and affection.

But I feel that any attempt on my part to portray the social and moral side of his life would be inadequate, and must refer for information in this regard to the affectionate notices* of him written by those who had enjoyed the privilege of intimate companionship with him, and who regarded him as a man of exceptionally exalted character.

1895. G. HAY.

FOREIGN HONORARY MEMBERS.

VISCOUNT FERDINAND DE LESSEPS.

IN the biographical notice that follows we do not expect to make an adequate exhibit of the work and honors of a life so long and impetuous as that of M. de Lesseps, but hope, by presenting the salient points in his career, to indicate what manner of man he was, from first to last, without intruding mere opinion.

Of his boyhood we know very little, except that he had every advantage of refined social life and education. As he reached manhood he found himself down at the front where volunteers for the

* See Christian Register, May 2, 1895; Cornell Daily Sun, April 3, 1895; The New Unity, Chicago, August 1, 1895.